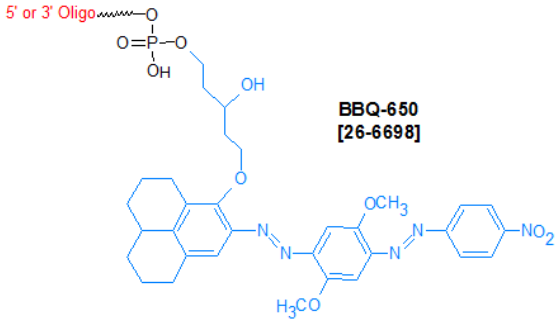
BBQ-650 NHS

Category	Quenchers
Modification Code	BBQ-650 N
Reference Catalog Number	26-6734
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	667.63



NHS modification is a post synthesis conjugation to a primary amino group thus an additional modification with an amino group is required. A C6 or C12 amino group can be placed at the 5' or for the 3' end a C3 or C7 amino and for internal positions an amino modified base is used, e.g Amino dT C6. **YIELD** NHS based modifications are post synthesis conjugation performed using a primary amino group. The yield is lower as compared to direct automated coupling of modifications that are available as amidites. Approximate yield for various scales are given below.
~2 nmol final yield for 50 nmol scale synthesis.
~5 nmol final yield for 200 nmol scale synthesis.
~16 nmol final yield for 1 umol scale synthesis

BlackBerry Quencher 650 (BBQ650) is classified as a dark quencher (a non-fluorescent chromophore). Dark quenchers are extensively used as the 3'-quencher moiety in a variety of Fluorescence Resonance Energy Transfer (FRET) DNA detection probes in which the fluorophore has a long wavelength (yellow to far red) emission maximum (e.g. Cy3, ROX, Cy5, Cy 5.5). Dark quenchers can serve in this role because they have long wavelength absorbance maxima. Dark quenchers are primarily used in nucleic acid assays, but also find a place in nucleic acid structural studies (1). Examples include TaqMan probes (2), Scorpion primers (3), and Molecular Beacons (4).

BBQ650 has an absorbance maximum of 650 nm, and an effective absorbance range of 550-750 nm (yellow to far red). It is chemically resistant to both oligonucleotide synthesis reagents (iodine, TCA) or deblocking solutions (ammonia, AMA). **Consequently, for synthesis of longer oligos (> 50 bases), BBQ650 is the preferred quencher over BHQ-2 or BHQ-3, as the latter are chemically less stable, and degrade when exposed to oligo synthesis and deprotection conditions for long periods of time, such as when synthesizing or processing longer oligos.**

Click here for list of quenchers.

Click here for a list of fluorophores.

Quencher Spectral Data

Quencher

Absorption Max, nm

Quenching Range, nm

genelink.com/newsite/products/mod_detail.asp?modid=118">Dabcyl 453 380-530 **BHQ-0** 495 430-520 **BHQ-1** 534 480-580 **BHQ-2** 579 550-650 **BHQ-3** 672 620-730 **BBQ-650** 650 550-750 Click here for complete list of quenchers and details **Black Hole Quencher License Agreement

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References

1. Didenko, V.V. DNA Probes Using Fluorescence Resonance Energy Transfer (FRET): Designs and Applications. *Biotechniques* (2001), **31**: 1106-1121.
2. Livak, K.J., Flood, S.J.A., Marmaro, J., Giusti, W., Deetz, K. Oligonucleotides with fluorescent dyes at opposite ends provide a quenched probe system useful for detecting PCR product and nucleic acid hybridization.*PCR Methods Appl.* (1995), **4**: 1-6.
3. Thelwell, N., Millington, S., Solinas, A., Booth, J., Brown, T. Mode of action and application of Scorpion primers to mutation detection. *Nucleic Acids Res.* (2000), **28**: 3752-3761.
4. Tyagi, S., Kramer, F.R. Molecular beacons: probes that fluoresce upon hybridization. *Nat. Biotechnol.* (1996), **14**: 303-308.